(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



. I Maio dinigra in colh denn cenn chinh chin chin chin cenn cenn chin chinh chinh cenn dini cenn cenn cenn ce

(43) International Publication Date 20 January 2005 (20.01.2005)

PCT

(10) International Publication Number WO 2005/006437 A1

(51) International Patent Classification7: H01L 23/58

(21) International Application Number:

PCT/IB2004/051117

(22) International Filing Date: 5 July 2004 (05.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 03102105.8 11 July 2003 (11.07.2003) 1

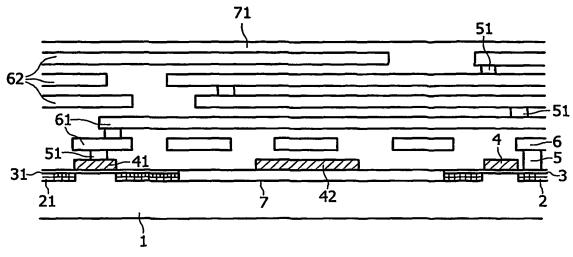
- (71) Applicant (for DE only): PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH [DE/DE]; Steindamm 94, 20099 Hamburg (DE).
- (71) Applicant (for AE, AG, AL, AM, AT, AU, AZ, BA, BB, BE, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CY, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, SZ, TJ, TM, TN, TR, TT, TZ, UA, UG,

UZ, VC, VN, YU, ZA, ZM, ZW only): KONINKLIJKE PHILIPS ELECTRONICS N. V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Bindhoven (NL).

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): BRETSCHNEIDER, Ernst [DIJ/DE]; c/o Philips Intellectual Property &, Standards GmbII Weisshausstr. 2, 52066 Aachen (DE).
- (74) Agent: VOLMER, Georg; Philips Intellectual Property &, Standards GmbH Weisshausstr. 2, 52066 Aachen (DE).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: SECURITY-SENSITIVE SEMICONDUCTOR PRODUCT, PARTICULARLY A SMART-CARD CHIP



(57) Abstract: To provide a security-sensitive semiconductor product, particularly a smartcard chip, in which are produced not only electrically active structures (2, 3, 4, 5, 6) envisaged by the chip design in the form of circuit functions in and on a wafer (1), which may for example be composed of silicon, but also additional, electrically conductive parts (42, 61, 62) (tiles) of the filling structure, which are insulated from one another, are generated by means of a design program in the remaining residual areas, which greatly impedes, to the reverse engineer the analysis of the security-sensitive circuit structure situated beneath them. The contacts between the parts which are generated, which contacts are for interlinking the latter with the chance signal paths described, may be set "by hand" or by a combination of the design programs in question and a corresponding routing program. The filling conductive parts can also be connected to circuit components, such as transistors, diodes, resistors or capacitors, in order to provide additional circuit functions (e.g. analyzer circuits).

GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.